IN THE CLAIMS:

1 - 18. (canceled)

19. (new) In a nonaqueous electrolyte secondary battery including a positive electrode containing a positive active material, a negative electrode containing a negative active material and a nonaqueous electrolyte,

said secondary battery being characterized in that said positive active material comprises lithium cobaltate in which Zr and Mg are contained by mixing their source materials in the preparation of the positive active material by a heat treatment; said Zr and Mg are contained in said lithium cobaltate in the total amount of not greater than 3 mole %, based on the total amount of the aforementioned elements and cobalt present in the lithium cobaltate; a Zr-containing compound after the heat treatment exists in the form of particles sintered with particle surfaces of the lithium cobaltate; and Zr is detected in the particles of the Zr-containing compound but not detected in the lithium cobaltate particles.

20. (new) The nonaqueous electrolyte secondary battery as recited in claim 19, characterized in that in said positive active

material, Mg is detected in both of said Zr compound particles and said lithium cobaltate particles.

21. (new) The nonaqueous electrolyte secondary battery as recited in claim 19, characterized in that said Zr and Mg are contained substantially in the equimolar amounts.

22. (new) The nonaqueous electrolyte secondary battery as recited in claim 19, characterized in that said positive active material has a specific surface area of not greater than 1.0 m^2/g.

23. (new) The nonaqueous electrolyte secondary battery as recited in claim 19, characterized in that said positive active material and said negative active material other than metallic lithium are contained such that when an end-of-charge voltage is prescribed at 4.4 V, a ratio in charge capacity of the negative electrode to the positive electrode is 1.0 - 1.2.

24. (new) The nonaqueous electrolyte secondary battery as recited in claim 19, characterized in that said nonaqueous electrolyte contains a cyclic carbonate and a chain carbonate, as a solvent, and the cyclic carbonate content of the solvent is 10 -

30 % by volume.

25. (new) The nonaqueous electrolyte secondary battery as recited in claim 19, characterized in that said positive electrode contains, as an electrical conductor, a carbon material in the amount not to exceed 5 % of the total weight of the positive active material, the conductor and a binder.

26. (new) A method of using a nonaqueous electrolyte secondary battery characterized in that a nonaqueous electrolyte secondary battery including a positive electrode containing a positive active material, a negative electrode containing a negative active material other than metallic lithium and a nonaqueous electrolyte is charged at an end-of-charge voltage of at least 4.3 V, said positive active material comprising lithium cobaltate in which Zr and Mg are contained by mixing their source materials in the preparation of the positive active material by a heat treatment, said Zr and Mg being contained in said lithium cobaltate in the total amount of not greater than 3 mole %, based on the total amount of the aforementioned elements and cobalt present in the lithium cobaltate, said Zr after the heat treatment being present in the form of particles of a Zr-containing compound that are

sintered with particle surfaces of the lithium cobaltate, and said Zr is detected in the particles of the Zr-containing compound but not detected in the lithium cobaltate particles.

27. (new) The method of using a nonaqueous electrolyte secondary battery as recited in claim 26, characterized in that in said positive active material, Mg is detected in both of said Zr compound particles and said lithium cobaltate particles.

28. (new) The method of using a nonaqueous electrolyte secondary battery as recited in claim 26, characterized in that said Zr and Mg are contained substantially in the equimolar amounts.

29. (new) The method of using a nonaqueous electrolyte secondary battery as recited in claim 27, characterized in that said Zr and Mg are contained substantially in the equimolar amounts.